

# THE EFFECTS OF ENERGY DRINKS ON POWERLIFTERS PERCEIVED EFFORTS

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## 1 INTRODUCTION

Powerlifting is a competitive sport, and athletes will compete against each other in their weight category. Powerlifting consists of an athlete taking a total number of nine lifts over three disciplines. The athletes perform a squat, bench, and deadlift in the three disciplines to maximum power output (Austin & Mann, 2012). Caffeinated drinks are popular amongst gymgoers and athletes (Diel et al. 2018). The efficacy of caffeine ingestion in enhancing aerobic performance is well established. However, despite suggestions that caffeine may improve resistance exercise performance, research needs to be more accurate on the effect of acute caffeine ingestion on resistance exercise performance (Harvard et al. School of Public Health, 2019).

## 2 LITERATURE REVIEW

Energy drinks contain carbohydrates, other nutrients and caffeine that may affect mental focus and concentration (Anderson et al., 2020). They can affect exercise capacity and a person's perception of energy or fatigue (Campbell et al., 2013). Caffeinated drinks are highly used in sports. Many athletes drink these drinks believing they will improve their performance within their sports discipline (Souza et al., 2016). Campbell et al. (2013) found that drinking a caffeinated drink 60 minutes before training can help to improve a person's performance. The minimum effective dose of caffeine to be ingested to improve a person's performance significantly is 2mg-3mg per kg of body weight. Caffeine improves reaction time, alertness and focus when ingested 60 mins before exercise (Forbes S.C. et al., 2007). Hoffman (2010) found that caffeine increased the amount of repetitions and volume when performing resistance exercises. Previous investigations in this area have been inconclusive due to the methodology used, the difference in the dosage of caffeine and the different tests used to assess performance (Guest et al., 2021). More research has yet to be conducted on an athlete's perceived perception using the Borg scale for RPE. There is insufficient research to determine if ingesting a caffeinated drink 45-60 minutes before or at intervals throughout exercise will improve a person's perceived perception when powerlifting. Therefore, this warrants more research in this area.

## OBJECTIVES

3 Conducting tests and research in this area could determine if there is a significant effect on the lifter's perceived perception when performing one rep max on a bench press.

## AIM

To find out if there is any difference in an athlete's RPE score post and pre-caffeinated drink.

## HYPOTHESIS

Ingestion of a caffeinated drink will decrease a powerlifter's perception when performing one rep max on the bench press.

## 4 METHODOLOGY

Small sample group, thirty people with six months of powerlifting experience. Both male and female over eighteen years old. A baseline test and two rounds of testing with caffeine are to be conducted.

- Warm-up lifts- 70%, 80%, 90% (final lift 100% RPE taken)
- The drink used red thunder (Aldi)
- Doses given 4x20ml at each lift
- T-Test Performed

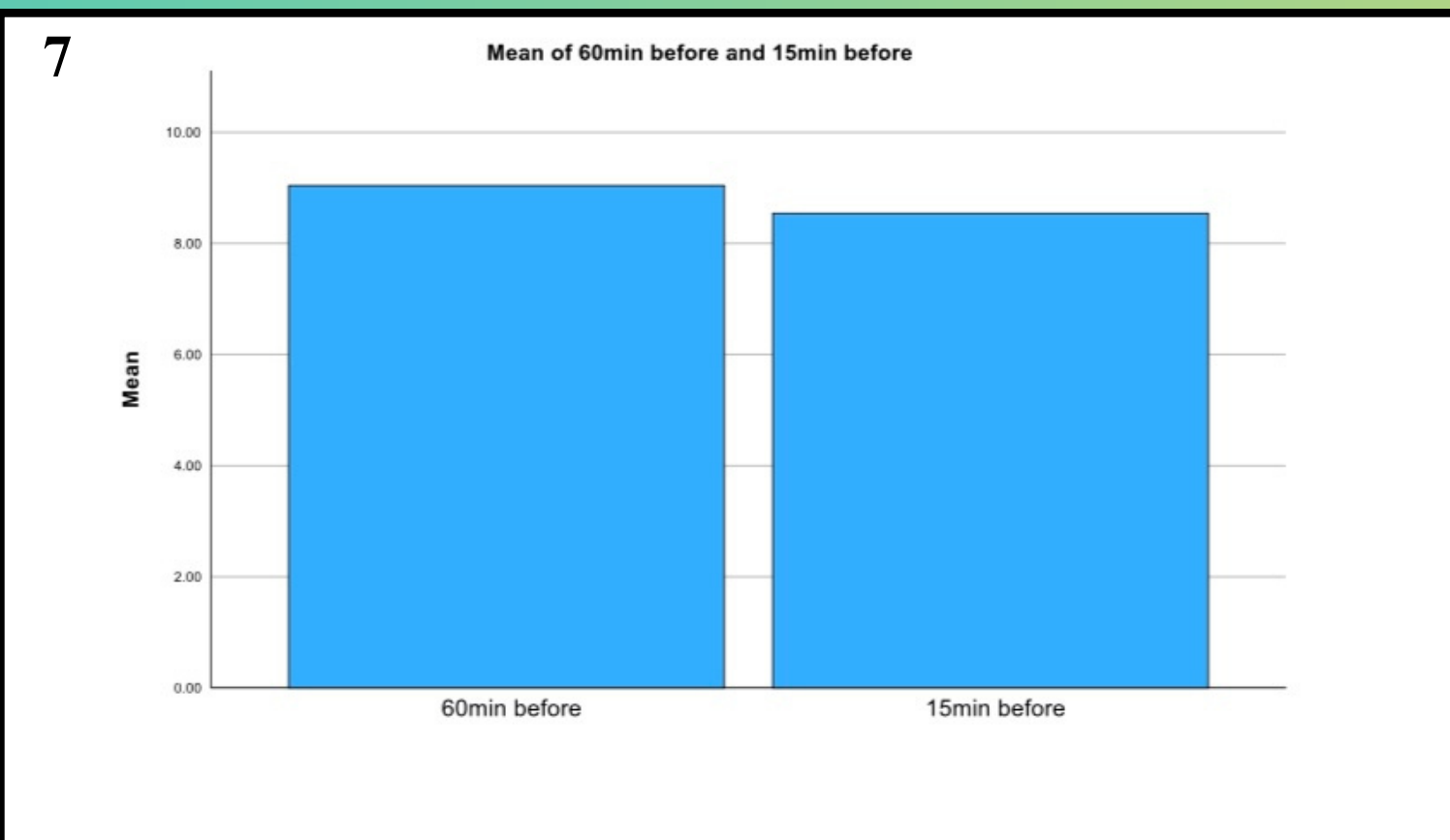
## INCLUSION AND EXCLUSION CRITERIA

- Any existing medical conditions/injuries
- Any allergy to any ingredients
- 6 months of training in powerlifting

## 5 RESULTS

A T- test was performed and found the following: when comparing 15 minutes to 60 minutes, the results came back as  $p=0.007$ , showing a significant effect when ingesting caffeine in 15-minute intervals. This could be due to the effects of caffeine on a person's heart rate and digestion times of caffeine. This means consuming a drink at 15-minute intervals during resistance exercise can decrease a person's RPE score, allowing them to lift heavier. Further studies in this area are needed to determine the P value when dosing participants with the recommended amount of 1.6-4mg per kg of body weight.

Pair		Mean	N	Std. Deviation	Std. Error Mean
1	FiveteenMinBefore	8.5417	24	.72106	.14719
	OneHourBefore	9.0417	24	.85867	.17528



## 8 LIMITATIONS

Rely on the participants to be honest with their answers when completing the questionnaire. Recruiting enough participants to take part in testing. Previous injuries may affect the results of the testing if not recorded. The participants pulled out partway through due to other commitments. Due to ethics and possible dangers that may occur can only use an energy drink and not pure caffeine.



Picture. A.Smailes, 2023



Picture: bing., (2021)

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